

alternators and motors, which would necessarily amount to about 12 per cent, is reduced to that due to mechanical gearing, which is in the neighbourhood of 2 to 3 per cent.

The turbines as well as the gearing and reversible clutch were built by the Swedish Ljungstrom Company at their Finspong Works.

The vessel measures 375 ft. X 52 ft. X 35 ft. 8 in., and draws 24 ft. 6 in. with a displacement of approximately 10,300 tons, the block coefficient being about 0.76. The gross tonnage is 4088, and the net, 2505.

The following is a summary of approximately twelve months' performance as recorded in the chief engineer's log, and including voyages to and from Apia and Borneo partly on coal and partly on oil.

Total mileage	..	..	..	57415-
Total hours	..	..	..	5610-5.
Mean speed	..	..	..	10.6 knots.
Mean indicated horse-power	..	..	..	2100.
Mean coal per day	..	..	..	22-J- tons.
Mean oil per day	..	..	..	16.1 tons.
Coal per i.h.p. hour	..	..	..	1.00 lb.
Oil per i.h.p. hour	..	..	..	0.74 lb.
Coal coefficient	..	..	..	23,500.
Oil coefficient	..	..	..	32,000.

No stoppage at sea occurred during the twelve months due to main machinery. On opening up at end of year no perceptible wear was noticed on any part.

Fig. 52 shows the main turbine with its gearing and clutch. It will be seen that the turbine is of the standard Ljungstrom type, and has a capacity of 2100 i.h.p., its normal speed being 3000 r.p.m. The normal steam conditions are as follows. Steam pressure 180 lb. per square inch, steam temperature 630° F., vacuum 28 in. (Bar. 30 in.). The turbine discs are overhung on the two gear pinions, which revolve in opposite directions in accordance with usual Ljungstrom practice. One pinion engages directly with the intermediate speed gear wheel which runs at 540 r.p.m., but an idler is placed between the other pinion and the gear wheel, so that both halves of this gear wheel revolve in the same direction.

The reversing clutch is mounted on the shaft carrying this gear wheel, and is placed between this and the pinion of the second gear which drives the propeller shaft at 70 r.p.m.

The reversing clutch consists of a fixed outer casing, in which is mounted

a revolving gear case containing a set of gear wheels of the
" epicyclic "
type. The gear case revolves with the intermediate shaft
when the pro-
peller is working ahead, and it remains fixed in the outer
casing when it is
going astern. These two conditions of the gear case are
obtained by means
of two sets of disc clutches, one inner and one outer. The
mutual position
of the outer disc is regulated by four pistons on which oil
pressure can be
applied on either side.